

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A method of performing a virtual network
2 connection merge, the method comprising:
3 assembling at least one data unit from data traffic of at least one network
4 connection in a plurality of connections;
5 assigning a relative frequency value to each network connection in the plurality of
6 connections, wherein a higher relative frequency value is assigned to a network connection
7 requiring a higher relative bandwidth;
8 allocating credits to each network connection in proportion to relative frequency
9 values of ready network connections of a same virtual network connection merge; calculating a
10 credit for each network connection;
11 determining a chosen data unit to be transmitted to an output channel, wherein the
12 step of determining the chosen data unit depends on credit of the network
13 ~~connections~~connection; and
14 transmitting the chosen data unit to the output channel.

1 2. (Original) The method of Claim 1, wherein the step of assembling at least
2 one data unit comprises:
3 allocating the data traffic of the at least one data unit into memory cells;
4 adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF)
5 cell is received, wherein the end of frame cell is used to identify unit boundaries.

1 3. (Original) The method of Claim 1, wherein the calculating step comprises
2 calculating a higher credit for a network connection having a data unit that is ready for
3 transmission, wherein a ready data unit is a whole data unit with memory cells filled with data
4 traffic.

1 4. (Original) The method of Claim 2, wherein the step of transmitting the
2 chosen data unit comprises:
3 allocating merge bandwidth for the chosen data unit;
4 adding memory cells of the chosen data unit to transmit lists; and
5 transmitting the memory cells of the chosen data unit to the output channel based
6 on information in the transmit lists, wherein the memory cells of the chosen data unit are
7 transmitted until an end of frame cell of the chosen data unit is transmitted.

1 5. (Original) The method of Claim 1, further comprising:
2 determining another chosen data unit to be transmitted to the output channel; and
3 transmitting the other chosen data unit to the output channel.

1 6. (Original) The method of Claim 5, further comprising performing steps of
2 the method until all data units with sufficient credit have been transmitted.

1 7. (Original) The method of Claim 1, wherein the at least one network
2 connection includes Asynchronous Transfer Mode (ATM) connections.

1 8. (Original) The method of Claim 1, further comprising:
2 assigning a bandwidth guarantee to each network connection;
3 receiving an overload of traffic from a network connection having a relatively low
4 bandwidth guarantee; and
5 storing the overload of traffic into at least one stored data unit.

1 9. (canceled).

1 10. (Original) The method of Claim 9, wherein the determining step
2 comprises:
3 generating a particular bandwidth shape token for the virtual network connection
4 merge; and

5 receiving a bandwidth shape token configured to assist in identifying the chosen
6 data unit.

1 11. (Currently Amended) An integrated circuit configured to perform a
2 virtual network connection merge, the integrated circuit comprising:

3 controller circuitry configured to control operations of:

4 assembling at least one data unit from data traffic of at least one network
5 connection in a plurality of network connections;

6 assigning a relative frequency value to each network connection in the plurality of
7 connections, wherein a higher relative frequency value is assigned to a network connection
8 requiring a higher relative bandwidth;

9 allocating credits to each network connection in proportion to relative frequency
10 values of ready network connections of a same virtual network connection merge
11 calculating a credit for each network connection;

12 determining a chosen data unit to be transmitted to an output channel, wherein the
13 step of determining the chosen data unit depends on credit of the network
14 connectionsconnection; and

15 transmitting the chosen data unit to the output channel.

1 12. (Original) The integrated circuit of Claim 11, wherein the controller
2 circuitry is further configured to control operations of:

3 allocating the data traffic of the at least one data unit into memory cells;

4 adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF)
5 cell is received, wherein the end of frame cell is used to identify unit boundaries.

1 13. (Original) The integrated circuit of Claim 11, wherein the controller
2 circuitry is further configured to control an operation calculating a higher credit for a network
3 connection having a data unit that is ready for transmission, wherein a ready data unit is a whole
4 data unit with memory cells filled with data traffic.

1 14. (Original) The integrated circuit of Claim 12, wherein the controller
2 circuitry is further configured to control operations of:
3 allocating merge bandwidth for the chosen data unit;
4 adding memory cells of the chosen data unit to transmit lists; and
5 transmitting the memory cells of the chosen data unit to the output channel based
6 on information in the transmit lists, wherein the memory cells of the chosen data unit are
7 transmitted until an end of frame cell of the chosen data unit is transmitted.

1 15. (Original) The integrated circuit of Claim 11, wherein the controller
2 circuitry is further configured to control operations of:
3 determining another chosen data unit to be transmitted to the output channel; and
4 transmitting the other chosen data unit to the output channel.

1 16. (Original) The integrated circuit of Claim 15, wherein the controller
2 circuitry is further configured to carry out operations of the integrated circuit until all data units
3 with sufficient credit have been transmitted.

1 17. (Original) The integrated circuit of Claim 11, wherein the at least one
2 network connection includes at least one Asynchronous Transfer Mode (ATM) connection.

1 18. (Original) The integrated circuit of Claim 11, wherein the controller
2 circuitry is further configured to control operations of:
3 assigning a bandwidth guarantee to each network connection;
4 receiving an overload of traffic from a network connection having a relatively low
5 bandwidth guarantee; and
6 storing the overload of traffic into at least one stored data unit.

1 19. (Canceled)

1 20. (Original) The integrated circuit of Claim 19, wherein the controlling
2 circuitry is further configured to control operations of:

3 generating a particular bandwidth shape token for the virtual network connection
4 merge; and
5 receiving a bandwidth shape token configured to assist in identifying the chosen
6 data unit.

1 21. (Currently Amended) A computer-readable medium carrying one or more
2 sequences of one or more instructions for performing a virtual network connection merge, the
3 one or more sequences of one or more instructions including instructions which, when executed
4 by one or more processors, cause the one or more processors to perform the steps of:

5 assembling at least one data unit from data traffic of at least one network
6 connection in a plurality of network connections;

7 assigning a relative frequency value to each network connection in the plurality of
8 network connections, wherein a higher relative frequency value is assigned to a network
9 connection requiring a higher relative bandwidth;

10 allocating credits to each network connection in proportion to relative frequency
11 values of ready network connections of a same virtual network connection merge~~calculating a~~
12 ~~credit for each network connection;~~

13 determining a chosen data unit to be transmitted to an output channel, wherein the
14 step of determining the chosen data unit depends on credit of the network
15 ~~connections~~connection; and

16 transmitting the chosen data unit to the output channel.

1 22. (Original) The computer-readable medium of Claim 21, wherein the step
2 of assembling at least one data unit further causes the processor to carry out the steps of:

3 allocating the data traffic of the at least one data unit into memory cells;
4 adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF)
5 cell is received, wherein the end of frame cell is used to identify unit boundaries.

1 23. (Original) The computer-readable medium of Claim 21, wherein the
2 calculating step further causes the processor to carry out the step of calculating a higher credit for

3 a network connection having a data unit that is ready for transmission, wherein a ready data unit
4 is a whole data unit with memory cells filled with data traffic.

1 24. (Original) The computer-readable medium of Claim 22, wherein the step
2 of transmitting the chosen data unit further causes the processor to carry out the steps of:
3 allocating merge bandwidth for the chosen data unit;
4 adding memory cells of the chosen data unit to transmit lists; and
5 transmitting the memory cells of the chosen data unit to the output channel based
6 on information in the transmit lists, wherein the memory cells of the chosen data unit are
7 transmitted until an end of frame cell of the chosen data unit is transmitted.

1 25. (Original) The computer-readable medium of Claim 21, wherein the
2 instructions further cause the processor to carry out the steps of:
3 determining another chosen data unit to be transmitted to the output channel; and
4 transmitting the other chosen data unit to the output channel.

1 26. (Original) The computer-readable of Claim 25, wherein the instructions
2 further cause the processor to perform the steps until all data units with sufficient credit have
3 been transmitted.

1 27. (Original) The computer-readable medium of Claim 21, wherein the at
2 least one network connection includes Asynchronous Transfer Mode (ATM) connections.

1 28. (Original) The computer-readable medium of Claim 21, wherein the
2 instructions further cause the processor to carry out the steps of:
3 assigning a bandwidth guarantee to each network connection;
4 receiving an overload of traffic from a network connection having a relatively low
5 bandwidth guarantee; and
6 storing the overload of traffic into at least one stored data unit.

1 29. (Canceled)

1 30. (Original) The computer-readable of Claim 29, wherein the determining
2 step further causes the processor to carry out the steps of:
3 generating a particular bandwidth shape token for the virtual network connection
4 merge; and
5 receiving a bandwidth shape token configured to assist in identifying the chosen
6 data unit.

1 31. (new) A method of performing a virtual network connection merge, the
2 method comprising:
3 assigning a relative frequency value to each network connection in a plurality of
4 network connections being represented in a first list;
5 assigning a credit to each network connection in the plurality of network
6 connections in the first list in a round robin sequential fashion;
7 when a network connection is assigned credits substantially equal to its relative
8 frequency value, removing the network connection from the first list;
9 continuing to assign a credit to each network connection in the plurality of
10 network connections in the first list in a round robin sequential fashion until the first list is
11 empty, wherein when a network connection is assigned credits substantially equal to its relative
12 frequency value, removing the network connection from the first list;
13 determining a chosen data unit to be transmitted to an output channel, wherein the
14 step of determining the chosen data unit depends on credit of the network connection; and
15 transmitting the chosen data unit to the output channel.

1 32. (new) The method of claim 31, further comprising moving the network
2 connection from the first list to a second list, wherein when the first list is empty, moving the
3 network connections back to the first list, the method further comprising:
4 continuing to assign a credit to each network connection in the plurality of
5 network connections in the first list in a round robin sequential fashion until the first list is

6 empty, wherein when a network connection is assigned credits substantially equal to its relative
7 frequency value, removing the network connection from the first list;

1 33. (new) The method of claim 1, wherein allocating credits to each network
2 connection comprises:

3 assigning a credit to each network connection in the plurality of network
4 connections in a list;

5 when a network connection is assigned credits equal to its relative frequency
6 value, removing the network connection from the list; and

7 continuing to assign a credit to each network connections in the plurality of
8 network connections in the first list until the list is empty, wherein when a network connection is
9 assigned credits equal to its relative frequency value, the network connection is removed from
10 the first list.

1 34. (new) The method of claim 11 wherein allocating credits to each network
2 connection comprises:

3 assigning a credit to each network connection in the plurality of network
4 connections in a list;

5 when a network connection is assigned credits equal to its relative frequency
6 value, removing the network connection from the list; and

7 continuing to assign a credit to each network connection in the plurality of
8 network connections in the first list until the list is empty, wherein when a network connection is
9 assigned credits equal to its relative frequency value, the network connection is removed from
10 the first list.

 35. (new) The method of claim 22, wherein allocating credits to each network
connection comprises:

 assigning a credit to each network connection in the plurality of network
connections in a first list;

when a network connection is assigned credits equal to its relative frequency value, removing the network connection from the first list; and

continuing to assign a credit to each network connection in the plurality of network connections in the first list until the first list is empty, wherein when a network connection is assigned credits equal to its relative frequency value, the network connection is removed from the first list.